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<110> Ni, Jian  
Gentz, Reiner L  
Yu, Guo-Liang  
Su, Jeffrey  
Rosen, Craig A

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| aaatatggac aggactatac cactcactgg aatgacacctc ttttctgctt gcgctgcacc  | 480  |
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| Leu         | Tyr | Thr | Met | Leu | Ile | Lys | Trp | Val | Asn | Lys | Thr | Gly | Arg | Asp | Ala |
| 355         |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 365 |
| Ser         | Val | His | Thr | Leu | Leu | Asp | Ala | Leu | Glu | Thr | Leu | Gly | Glu | Arg | Leu |
| 370         |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 380 |
| Ala         | Lys | Gln | Lys | Ile | Glu | Asp | His | Leu | Leu | Ser | Ser | Gly | Lys | Phe | Met |
| 385         |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 400 |
| Tyr         | Leu | Glu | Gly | Asn | Ala | Asp | Ser | Ala | Met | Ser |     |     |     |     |     |
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| Glu         | Leu | Leu | Val | Gly | Ile | Tyr | Pro | Ser | Gly | Val | Ile | Gly | Leu | Val | Pro |
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| His         | Leu | Gly | Asp | Arg | Glu | Lys | Arg | Asp | Ser | Val | Cys | Pro | Gln | Gly | Lys |
|             |     |     |     |     | 35  |     |     |     |     |     |     |     |     |     | 45  |
| Tyr         | Ile | His | Pro | Gln | Asn | Asn | Ser | Ile | Cys | Cys | Thr | Lys | Cys | His | Lys |
|             |     |     |     |     | 50  |     |     |     |     |     |     |     |     |     | 60  |
| Gly         | Thr | Tyr | Leu | Tyr | Asn | Asp | Cys | Pro | Gly | Pro | Gly | Gln | Asp | Thr | Asp |
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| Cys         | Arg | Glu | Cys | Glu | Ser | Gly | Ser | Phe | Thr | Ala | Ser | Glu | Asn | His | Leu |
|             |     |     |     |     | 85  |     |     |     |     |     |     |     |     |     | 95  |
| Arg         | His | Cys | Leu | Ser | Cys | Ser | Lys | Cys | Arg | Lys | Glu | Met | Gly | Gln | Val |
|             |     |     |     |     | 100 |     |     |     |     |     |     |     |     |     | 110 |
| Glu         | Ile | Ser | Ser | Cys | Thr | Val | Asp | Arg | Asp | Thr | Val | Cys | Gly | Cys | Arg |
|             |     |     |     |     | 115 |     |     |     |     |     |     |     |     |     | 125 |
| Lys         | Asn | Gln | Tyr | Arg | His | Tyr | Trp | Ser | Glu | Asn | Leu | Phe | Gln | Cys | Phe |
|             |     |     |     |     | 130 |     |     |     |     |     |     |     |     |     | 140 |
| Asn         | Cys | Ser | Leu | Cys | Leu | Asn | Gly | Thr | Val | His | Leu | Ser | Cys | Gln | Glu |
|             |     |     |     |     | 145 |     |     |     |     |     |     |     |     |     | 160 |
| Lys         | Gln | Asn | Thr | Val | Cys | Thr | Cys | His | Ala | Gly | Phe | Phe | Leu | Arg | Glu |
|             |     |     |     |     | 165 |     |     |     |     |     |     |     |     |     | 175 |
| Asn         | Glu | Cys | Val | Ser | Cys | Ser | Asn | Cys | Lys | Lys | Ser | Leu | Glu | Cys | Thr |
|             |     |     |     |     | 180 |     |     |     |     |     |     |     |     |     | 190 |
| Lys         | Leu | Cys | Leu | Pro | Gln | Ile | Glu | Asn | Val | Lys | Gly | Thr | Glu | Asp | Ser |
|             |     |     |     |     | 195 |     |     |     |     |     |     |     |     |     | 205 |

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 Ser Lys Leu Tyr Ser Ile Val Cys Gly Lys Ser Thr Pro Glu Lys Glu  
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 Gly Glu Leu Glu Gly Thr Thr Lys Pro Leu Ala Pro Asn Pro Ser  
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 Pro Ser Ser Thr Phe Thr Ser Ser Ser Thr Tyr Thr Pro Gly Asp Cys  
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 Pro Asn Phe Ala Ala Pro Arg Arg Glu Val Ala Pro Pro Tyr Gln Gly  
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 Thr Asp Asp Pro Ala Thr Leu Tyr Ala Val Val Glu Asn Val Pro Pro  
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Leu | Ser | Ser | Lys | Ser | Val | Asn | Ala | Gln | Val | Thr | Asp | Ile | Asn | Ser |
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| Lys | Gly | Leu | Glu | Leu | Arg | Lys | Thr | Val | Thr | Thr | Val | Glu | Thr | Gln | Asn |
| 35  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 45  |
| Leu | Glu | Gly | Leu | His | His | Asp | Gly | Gln | Phe | Cys | His | Lys | Pro | Cys | Pro |
| 50  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 60  |
| Pro | Gly | Glu | Arg | Lys | Ala | Arg | Asp | Cys | Thr | Val | Asn | Gly | Asp | Glu | Pro |
| 65  |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 80  |
| Asp | Cys | Val | Pro | Cys | Gln | Glu | Gly | Lys | Glu | Tyr | Thr | Asp | Lys | Ala | His |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 95  |
| Phe | Ser | Ser | Lys | Cys | Arg | Arg | Cys | Arg | Leu | Cys | Asp | Glu | Gly | His | Gly |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     |     | 110 |
| Leu | Glu | Val | Glu | Ile | Asn | Cys | Thr | Arg | Thr | Gln | Asn | Thr | Lys | Cys | Arg |
|     |     |     |     |     |     |     |     |     | 120 |     |     |     |     |     | 125 |
| Cys | Lys | Pro | Asn | Phe | Phe | Cys | Asn | Ser | Thr | Val | Cys | Glu | His | Cys | Asp |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 140 |
| Pro | Cys | Thr | Lys | Cys | Glu | His | Gly | Ile | Ile | Lys | Glu | Cys | Thr | Leu | Thr |
|     |     |     |     |     |     |     |     |     | 150 |     |     |     |     |     | 160 |
| Ser | Asn | Thr | Lys | Cys | Lys | Glu | Glu | Gly | Ser | Arg | Ser | Asn | Leu | Gly | Trp |
|     |     |     |     |     |     |     |     |     | 165 |     |     |     |     |     | 175 |
| Leu | Cys | Leu | Leu | Leu | Leu | Pro | Ile | Pro | Leu | Ile | Val | Trp | Val | Lys | Arg |
|     |     |     |     |     |     |     |     |     | 180 |     |     |     |     |     | 190 |
| Lys | Glu | Val | Gln | Lys | Thr | Cys | Arg | Lys | His | Arg | Lys | Glu | Asn | Gln | Gly |
|     |     |     |     |     |     |     |     |     | 195 |     |     |     |     |     | 205 |
| Ser | His | Glu | Ser | Pro | Thr | Leu | Asn | Pro | Glu | Thr | Val | Ala | Ile | Asn | Leu |
|     |     |     |     |     |     |     |     |     | 210 |     |     |     |     |     | 220 |
| Ser | Asp | Val | Asp | Leu | Ser | Lys | Tyr | Ile | Thr | Thr | Ile | Ala | Gly | Val | Met |
|     |     |     |     |     |     |     |     |     | 225 |     |     |     |     |     | 240 |
| Thr | Leu | Ser | Gln | Val | Lys | Gly | Phe | Val | Arg | Lys | Asn | Gly | Val | Asn | Glu |
|     |     |     |     |     |     |     |     |     | 245 |     |     |     |     |     | 255 |
| Ala | Lys | Ile | Asp | Glu | Ile | Lys | Asn | Asp | Asn | Val | Gln | Asp | Thr | Ala | Glu |
|     |     |     |     |     |     |     |     |     | 260 |     |     |     |     |     | 270 |
| Gln | Lys | Val | Gln | Leu | Leu | Arg | Asn | Trp | His | Gln | Leu | His | Gly | Lys | Lys |
|     |     |     |     |     |     |     |     |     | 275 |     |     |     |     |     | 285 |
| Glu | Ala | Tyr | Asp | Thr | Leu | Ile | Lys | Asp | Leu | Lys | Lys | Ala | Asn | Leu | Cys |
|     |     |     |     |     |     |     |     |     | 290 |     |     |     |     |     | 300 |
| Thr | Leu | Ala | Glu | Lys | Ile | Gln | Thr | Ile | Ile | Leu | Lys | Asp | Ile | Thr | Ser |
|     |     |     |     |     |     |     |     |     | 305 |     |     |     |     |     | 320 |
| Asp | Ser | Glu | Asn | Ser | Asn | Phe | Arg | Asn | Glu | Ile | Gln | Ser | Leu | Val |     |
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Arg Gly Cys Pro Ala Gly His Tyr Leu Lys Ala Pro Cys Thr Glu Pro  
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Cys Gly Asn Ser Thr Cys Leu Val Cys Pro Gln Asp Thr Phe Leu Ala  
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Trp Glu Asn His His Asn Ser Glu Cys Ala Arg Cys Gln Ala Cys Asp  
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Glu Gln Ala Ser Gln Val Ala Leu Glu Asn Cys Ser Ala Val Ala Asp  
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Thr Arg Cys Gly Cys Lys Pro Gly Trp Phe Val Glu Cys Gln Val Ser  
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Gln Cys Val Ser Ser Ser Pro Phe Tyr Cys Gln Pro Cys Leu Asp Cys  
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Gly Ala Leu His Arg His Thr Arg Leu Leu Cys Ser Arg Arg Asp Thr  
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Asp Cys Gly Thr Cys Leu Pro Gly Phe Tyr Glu His Gly Asp Gly Cys  
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Val Ser Cys Pro Thr Ser Thr Leu Gly Ser Cys Pro Glu Arg Cys Ala  
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Gly Leu Val Val Pro Leu Leu Leu Gly Ala Thr Leu Thr Tyr Thr Tyr  
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Arg His Cys Trp Pro His Lys Pro Leu Val Thr Ala Asp Glu Ala Gly  
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Ser Ala His Thr Leu Leu Ala Pro Pro Asp Ser Ser Glu Lys Ile Cys  
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Thr Val Gln Leu Val Gly Asn Ser Trp Thr Pro Gly Tyr Pro Glu Thr  
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ser | Arg | Ala | Leu | Gly | Pro | Ala | Ala | Ala | Pro | Thr | Leu | Ser | Pro | Glu | Ser |
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| Pro | Ala | Gly | Ser | Pro | Ala | Met | Met | Leu | Gln | Pro | Gly | Pro | Gln | Leu | Tyr |
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| Asp | Val | Met | Asp | Ala | Val | Pro | Ala | Arg | Arg | Trp | Lys | Glu | Phe | Val | Arg |
|     |     |     |     |     |     | 340 |     | 345 |     |     |     | 350 |     |     |     |
| Thr | Leu | Gly | Leu | Arg | Glu | Ala | Glu | Ile | Glu | Ala | Val | Glu | Val | Glu | Ile |
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| Gly | Arg | Phe | Arg | Asp | Gln | Gln | Tyr | Glu | Met | Leu | Lys | Arg | Trp | Arg | Gln |
|     |     |     |     |     |     | 370 |     | 375 |     |     | 380 |     |     |     |     |
| Gln | Gln | Pro | Ala | Gly | Leu | Gly | Ala | Val | Tyr | Ala | Ala | Leu | Glu | Arg | Met |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     | 400 |     |     |
| Gly | Leu | Asp | Gly | Cys | Val | Glu | Asp | Leu | Arg | Ser | Arg | Leu | Gln | Arg | Gly |
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|                                                                   |     |
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| cggaatgatc cagacatttc cataggtcct tattatcaca ttcagcttat aaaataatgc | 180 |
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| aattcgaggg tgcaccgtca gtcttcctct tccccccaaa acccaaggac accctcatga | 120 |

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| tctccggac tcctgaggc acatgcgtgg tggggacgt aagccacgaa gaccctgagg     | 180 |
| tcaagttcaa ctgg tacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg | 240 |
| aggagcagta caacagcacy taccgtgtgg tcagcgtcct caccgtcctg caccaggact  | 300 |
| ggctgaatgg caaggagta aagtgcagg tctccaacaa agccctccca acccccacatcg  | 360 |
| agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc  | 420 |
| catcccgga tgagctgacc aagaaccagg tcagcctgac ctgcctggc aaaggcttct    | 480 |
| atccaagcga catcgccgtg gagtgggaga gcaatggca gccggagaac aactacaaga   | 540 |
| ccacgcctcc cgtgctggac tccgacggct ccttcttct ctacagcaag ctcaccgtgg   | 600 |
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| acaaccacta cacgcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc  | 720 |
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| aggngcgggg agccaggcct gggccccggg tccccaaagac cttgtgctc gttgtcgccg  | 180 |

|                                                                    |     |
|--------------------------------------------------------------------|-----|
| cggtcctgct gtttgtgagt ccccgccgct gtccctggct ggggaagagc gtnccctggcg | 240 |
| cctggagagg gcagggga                                                | 257 |